

September 7, 1959

SPECIAL REPORT:

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Astronautical  
Meeting**

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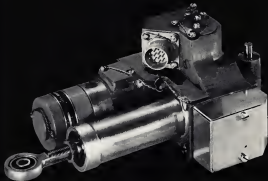
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## AVIATION CALENDAR

(Continued from page 35)

- [illegible]



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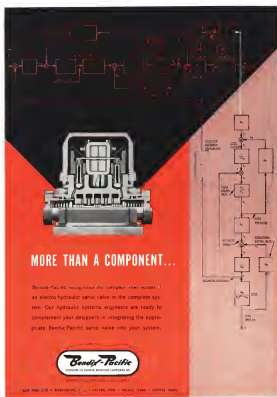
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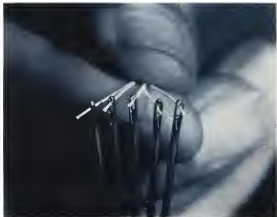
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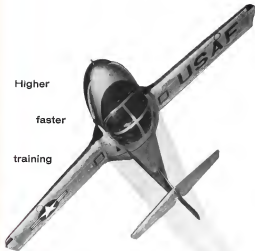


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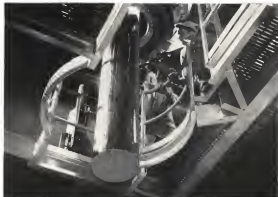


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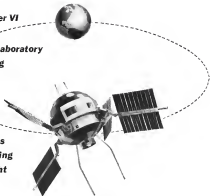
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## More Pentagon Censorship

The attempt to ban publication of the book "Design for Survival" by Gen. Thomas S. Power, chief of Strategic Air Command, adds another chapter to the already infamous record of censorship imposed by politically appointed civilians in the Defense Department.

This censorship campaign of manipulation of military news to present a consistently distorted and overly optimistic view of the defense posture to the American public is directed by the Department's office of public information headed by Maurice Snyder. Its activities range from the ridiculous (as covered in our dissertation on "More Monkey Business" in AWE July 13, p. 21), to subtly screen matters such as the suppression of Gen. Power's book. While the secrecy has been open over one of Indian nuclear matters in space research (illustrated the treasonous ignorance that stimulates some of these alleged security regulations, the case of Gen. Power's book reveals how these security policies are employed to reflexively suppress any opinions that might conflict with the present program of drastically weakening our defense forces for purely budgetary considerations.

It also puts a public spotlight of publicity on the vague, shadowy and ad hoc methods of these censor who even extend the cloak of administrative secrecy to themselves in an attempt to conceal their activities from public scrutiny. Rep. Moss (D-Calif.) and the congressional subcommittee on freedom of information certainly have ample reason to make formal investigations of this case. We await with interest the reply from the Secretary of Defense to the questions raised by Rep. Moss (see p. 34).

The suppression of Gen. Power's book provides a typical case known of how this censorship prevents new works in the Pentagon. Before writing the book, Gen. Power obtained permission to do so from James Douglas, Secretary of the Air Force, and had the manuscript cleared for military security by Air Force headquarters. The book manuscript was officially transmitted to Maurice Snyder's office on April 23, 1959, but, as of the writing, neither Gen. Power nor the Air Force officials who submitted the manuscript through regular channels to the Defense Department had received any official notice of Snyder's refusal to allow the book to be published.

The only communication on the subject emanating from Snyder's shop has been an informal announcement in response to published queries of the suppression that:

"Approval to publish at this time was denied on the grounds that it was inappropriate for a commander of a major command to author a book concerning his area of responsibility while on active duty in that command."

The fairness of this excuse was quickly revealed by a list compiled from official Defense Department sources by Sen. Stuart Symington (D-Mo.) of more than 15 general officers who have recently written and published

books on their area of military responsibility while on active duty. This list includes President Eisenhower, who published his "Crusade in Europe" while on active duty as the Army's Chief of Staff and who, according to his own figures, published by over 5700,000 through a special tax ruling on his book. In contrast, Gen. Power has proposed that all revenues from his book be devoted to military charities.

Just a few weeks ago, the Defense Department concurred in NASA's decision to allow the seven astronauts (all military officers) to sell their space flight stories exclusively to Life magazine for a sum reported in excess of \$500,000. Similarly, the Navy permitted the commander of the Nautilus submarine to write his story in book form while still retaining that command.

A second flaw in the Snyder statement is that Gen. Power's book, as reported by those who have reviewed the manuscript, is not a book exclusively about Strategic Air Command but rather a much broader discussion of the country's military problems for the future. Few people, military or civilian, in this country are better qualified than Gen. Power to discuss this subject. He has served as strategic airpower in combat and has been one of the principal architects of the strategic deterrent force that forms the backbone of U.S. military policy. He has commanded the vast USAF research and development program in the key area which ballistic missiles appeared on the horizon and today holds the most critical and responsible command command job as the entire Defense Department.

The real reason Gen. Power's book is being suppressed by the civilian leaders of the Defense Department is that their first step on the program of drastic cuts in U.S. military strength they are planning and will soon announce. These cuts are based solely on fiscal considerations and will slice U.S. military power to the bone in a manner not seen in the Pentagon since the regime of Loren G. Hays in Defense Secretary. These cuts and stretch will affect the Atlas ICBM, the B-58 Mach 2 bomber, the B-70 and F-106 Mach 3 generation of aircraft, the hypersonic Dyde Scout program and even the B-52 and KC-135 production programs.

While these cuts are being plotted in the Pentagon, their advocates are afraid to allow the American people to read the thoughts of the man who is charged with maintaining the strategic deterrent force that they rely on to preserve the peace.

We urge the American people through their press and Congress to lend every effort to smash this medieval chain of censorship that now bars Gen. Power's book and to demand access to his thoughts on an effective design for our country's survival. Whether the American people agree with Gen. Power's idea or not, it is part of their birthright as citizens of a republic founded on the principles of democracy to have access to them.

—Robert Hols





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- Aircrew Warning Data Computer and Automobile Plotter W&B MOD 0
- Data Recorder and Data Recorder MOD 0



STAVID is an active and active company that was founded by RICHARD E. BURDETTE, with former defense electronics experience, in 1967. STAVID is a subsidiary of STAVID Engineering, Inc., located in Fairfield, New Jersey.

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## Washington Roundup

### USAF Missile Management

Members of Congress are predicting that General Accounting Office's coming report on Air Force management of its ballistic missile programs will reveal widespread cases of mismanagement and overcharges to the government. The report is scheduled for submission to Congress when the new session convenes in January. GAO said that its survey team began USAF development of its future missile programs in 1967, and that it is the full report of an investigation by the USAF Inspector General (AIG) No. 17, p. 70. House Government Operations Committee commented in a report last week.

"Judging from the rather frequent reports of excess payments made by the government on contracts to its great military programs, the ballistic missile area undoubtedly will have up more cases of this kind. When reports are great, costs are of lesser concern."

### New ARPA Projects

House Government Operations Committee disclosed last week that three new projects have been assigned to Advanced Research Projects Agency.

- **Trilex**, a continuing study of advanced military space vehicles capable of surviving designated military space missions including guidance, stabilization, and control components.
- **Semtex**, a space platform to provide an orbital base for advanced space missions.
- **Principles**, involving solid propellants with higher specific impulses than now available.
- **Perkins**, a space experiment in structural and other conversion materials to survive extreme space and other programs.
- **Longlight**, continuous studies and systems analyses in the space vehicle and missile fields to provide the basis for recommendations on projects to satisfy future system requirements.

### Anast Joins FAA

Top post in the Federal Aviation Agency's Bureau of Research and Development was filled last week with the appointment of James L. Anast, former technical director of the Aeronautics Administration. Anast, 46, who has been in the agency's Research and Development Office of Public Affairs as the space director in the agency's organizational structure, will be filled. He is now acting as the liaison between the FAA and the Department of Defense, previously associated with the Military Readiness Commission's public affairs office.

Anast left the Aeronautics Administration last week to join FAA. He later was named president of a post he held for a brief time prior to his return to government service.

### Delta Pilot Protest Rejected

Refuseness to become involved in intermanagement disputes was a major reason cited by the Civil Aeronautics Board last week in rejecting the protest of a group of Delta Air Lines pilots against the company's taking over the airline, merged with Chicago and Southern Airlines in 1973. Before then the pilots would have had to change after Delta as the Air Line Pilots Assn. local chapter with acting as bad luck in driving up the

company, but which has been in effect for nearly two years, the Board said it disapproved the petition for lack of evidence. CAB said it has always followed the policy of expediting the remaining company in an attempt to carry out necessary integration in an equitable manner.

### Translation Research

Contract research efforts out of high-speed electronic computers for translation of foreign languages scientific articles was signed by a House Science and Astronautics Committee report. The report said it is doubtful that fully automatic, high-quality machine translation can ever be achieved, but the machines can actually be used in the future to reduce the human workload.

### Equal Wage Bid Lost

Aircraft industry has lost an important round in its campaign to equalize salaries, industry W&A-Holly employees wages with its own. While Holly, Act against Labor Department to secure an industry to determine the prevailing minimum wage, and that prevailing wage is not at the minimum in government contracts. Aircraft industry wanted aircraft and in both electronics companies included in the award classification so they would have to pay the same minimum wage, arguing that it is unfair to allow the electronics firms to compete with a lower minimum wage. Labor Department refused to include them.

Some new companies may be included in the award industry category under a new study. Labor Department will conduct a determination whether the present definition should be expanded to include certain phases of aircraft production. These phases include new roles, production systems and assembly and structures, but electronic parts of electronic equipment and avionics are specifically excluded. Labor Department will data compiled by the Defense Department on wage rates paid in making electronic parts for aircraft leads to the conclusion that they should be included under the series of aircraft and missile plants.

Some change in the W&A-Holly minimum wage gap between the aircraft and electronics industries could go far from a series of the electronics industry, the Labor Department will conduct tests. The series, which will include manufacturers of aircraft and missile electronics equipment, will determine whether a new minimum should be set for the industry.

### New Express Pact

Agreement on a new contract between the scheduled airlines and Federal Express Agency, covering an express activities was expected by the end of last week. The new contract, which will replace a contract that expired July 31, will run for five years and will establish a regular meeting partnership between the airlines and the agency for the first time. In the past, the agency has contracted its pickup and delivery services on a cost-plus basis. Under the terms of the new contract, the two groups will share in revenues after deduction of expenses. In addition, a joint committee, composed of airline and agency representatives, will be organized to handle all operating problems including air carrier scheduling and fleet pickup hours.

—Washington Staff

# Dryden Foresees World Cooperation on

Space research needs world's ideas, NASA deputy administrator tells Astronautical Congress.

By Evert Clark

**London**—There is "increasing indication that space exploration may soon develop beyond the resources of a single nation. To carry it out, demanding an unprecedented degree of international cooperation," Dr. Hugh L. Dryden, deputy administrator of National Aeronautics and Space Administration, told the 10th International Astronautical Congress last week.

"Space research needs to draw upon a whole world of its ideas," Dr. Dryden said. "So close is the challenge and so vast is the promise to mankind that the world cannot afford to neglect it."

Recognition that even more international cooperation is rapidly becoming an essential of space flight, and not just a desirable replacement, dominated the Congress, attended by some 700 delegates from more than 38 nations.

Dr. Dryden delivered the inaugural speech.

Back the Congress sponsored by the International Astronautical Federation and the first Commonwealth Space Flight Symposium which provided it, were marked by a strong feeling that the United Kingdom no longer can afford to be put on observer of the space race between the United States and the Soviet Union.

General attitude in Britain previously has been that the great head start and

greater financial resources of both larger countries left Britain hopelessly behind, and that perhaps Britain should not be involved in such a vast enterprise. But a feeling that the United Kingdom must achieve, as space exploration if it is to maintain its position politically and scientifically, apparently is crystallizing rapidly with the recently announced U.S.-U.K. satellite launching agreement behind and the availability of the Saunders-Roe Black Knight and de Havilland Blue Streak rockets not too far in the future.

Dr. R. N. Quirk, secretary in the Lord President's office, said the United Kingdom is "increasingly involved" in the U.S. for this cooperation and will be "quite enthusiastically meeting" that "such enlightening people as Dr.

Dryden" as the U.S. government had made such a contribution.

To increase such cooperation, IAF President Andrew G. Haley proposed an early a permanent secretariat for the IAF but also an International Academy of Astronautical Ideas on such as would carry forth among the delegates and by late last week there was some agreement that such an organization should be created that there was no how it should be constituted.

The post program calls for the U.S. to launch three British scientific satellites 70 in in diameter and 20 in long and weighing about 110 lb. by mid 1965, during the first stage. Space solid rocket now being developed by the U.S. (see p. 84) P-1000 will be available in 10 British tons and approximately 10 satellites several important physical characteristics in space at about 500 mi altitude.

One estimate is that the program will cost about four times and cost about \$2.5 million.

Both de Havilland and Saunders-Roe have design studies calling for the launching of satellites and probes using conventional and rocket motors of the Black Knight and Blue Streak rockets. The rocket and Black Knight a research rocket which has not appeared in the U.S. companion such a solid stage added to give the ability to park orbits to satellite orbits.

G. K. C. Parker, chief coordinator of ballistic missiles for de Havilland Properties, Ltd. proposed several reasons for these contributions of the two rockets. It is an expert to the Commonwealth Symposium. He proposed follow-up report for the IAF Congress titled "The Feasibility of Blue Streak, in a British Space Flight Program," was withdrawn for security reasons.

Parker's suggestions for space jets included:

- **Blue Streak** plus a dual solid project stage, now under development to put some 1,000 lb. in a 500-mi circular earth orbit.
- **Blue Streak** plus Black Knight, which has a four-chamber, 10,000-lb thrust "Aeromagnetic" engine. To thrust 10,000 lb. at launch. Black Knight, which has been fired at least four times "to demonstrate a reasonably high state of reliability," Parker said.
- **Blue Streak** plus the Black Knight engine with tankage, enlarged and modified into a "cannon" configuration to give the upper stage the same maximum diameter as the first stage, and to avoid problems presented by a long, thin second stage. That could double the payload capacity over the

# Space Efforts

previous vehicle, putting 2,000 lb. into a 100 mi orbit.

• Addition of a single single solid stage on top of the dual-stage package to put a similar payload deeper into space.

All proposals depend only on equipment already in existence or being developed here, and obvious improvements could be made if special stages were developed or higher energy fuels used.

John E. Allen, head of Aerodyne Inc., Physics and Assessment Department of A. V. Roe and Co. Ltd., proposed similar combinations in a thorough survey of British scientific organizations and research facilities. He advised against an expensive space program for the moment but recommended a "pilot experiment" appears to spotlight, including creation of a spaceflight research association, actively engaged in improving flight experiments, etc., for the ground, and creation of an earth satellite experimental laboratory for physical, astronomical and meteorological development of a bioprocess wing stage suitable for the future that would be able to launch satellites.

## Test Stage

Allen also proposed development of a high drag, high lift test stage to be launched by a Douglas Thor booster for flight in about March '70 and a Black Knight stage for conventional launch, plus a low drag, high lift stage to be launched from an Arco Vulcan by a two-stage solid rocket.

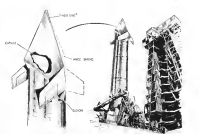
Dr. W. F. Hutton of Hawley Siddeley Avionics Advanced Projects Group described a wedge-shaped, high lift, high drag "flying pencil" that could be used as a two-stage earth satellite. Hutton believes that some type of high lift, high drag stage will be needed for all manned space flight requiring earth reentry beyond the first stage, and that the high drag stage could be the U.S. Minuteman capsule and quickly be abandoned. Models of the potential have been developed into free flight and tested in wind tunnels at Arco strong Wharfedale Aircraft, Ltd.

Soviet delegation caused a major stir when one member, Prof. V. I. Kozlov, 100,000 lb. was quoted in a London newspaper as saying that the U.S. entered orbit before tests in the upper atmosphere after the beginning of creation of atomic tests last fall.

At a press conference later, Prof. Leonid Sedov, chairman of the USSR Academy of Sciences Space Flight Commission, said that Kozlov had been misunderstood, and that what Kozlov said was that Russian content in the upper atmosphere was high



**BRITISH** Blue Streak model, designed by a team headed by de Havilland Properties, Ltd., is rolled for testing in a hot tunnel at Hatfield, England. Models will be fired from underground launch sites, will have engine worked. Tests will be at Woomera, Australia.



**WEDGE-SHAPED**, high lift, high drag "flying pencil" model has been tested at Armstrong-Wharfedale wind tunnel. Configuration was described by Dr. W. F. Hutton of Hawley Siddeley (photo center). Armstrong-Wharfedale, test capable for two space agencies.

## British Seek Active Space Role

**London**—Britain does not plan, a far more active role in the exploration of space is expected to receive the much needed boost of stronger government support if the proposal government is returned to office in general elections expected next month. Several key strong active participation in the first Commonwealth Space Flight Symposium and the 10th International Astronautical Congress have last week the government is believed to be ready to act to help making Britain a space power, even the elections are out of the way.

Recent to act on to more people with the British space test spotlight, government support of an independent space program is not being discussed in its decision time. For private talks between scientists of a growing program and government officials have left the advocates with the delicate impression Britain no longer feels it can afford not to develop its space capabilities.

Minister of Supply, Aubrey Jones, whose agency would direct most of the government's participation in a space program, officially supports the Astronautical Congress.

Very as Giddens' presentation added at the telescope "Jones said "We should be doing it on our own ground and in relation to the ability of repeating that in common degree of before. In short, it is much more for leaders states to decide that space research is worthy of their support than it was for the Great Order of Florence to devote resources or not Giddens should not be supported."

What the total situation is out of which this support can be given, what the decision from these resources is to non-renewable resources to decide time would be to about you into the arena of public, and before this audience I think I should mention on strictly scientific basis.

Scientists there is no need to doubt at all but that every state which claims to be the banner of civilization should do everything it can to develop sciences as the knowledge of the physical chemistry and even the biology of space."



# Pressure Rising for Service Unification

By Fred Eckman

Washington—Demands for unification of the military services and reorganization of the Defense Department (at two peaks last week, as members of both the House and Senate began annual action to "roll back" and consolidate in the Pentagon.

Current suggestions of the defense and space efforts draw sharp congressional criticism, and concrete proposals for reshaping and streamlining their efforts are made in both House and Senate reports and proposals.

House Government Operations Committee, under President Eisenhower to initiate studies leading to an Air Force merger. In addition to achieving a unified effort in the development, construction and deployment of land-based missiles, the committee said the merger also should cut radio service, conflicts over civil and military support missions and accomplish integrated planning for tactical and strategic missiles.

Problems between the unified services and the Navy would remain, but there would be of such lesser dimensions, the committee said. Dr. Herbert York, Defense Department director of research and engineering, and recently that work is now under way toward defining the roles and missions of the three services in order to ease administration.

Sen. Glen Engle (D-Ill.), a senior member of the Senate Armed Services Committee, attacked old demands for reorganization earlier in a Senate speech, proposing elimination of service departments and reorganization of the Defense Department on the basis of func-

tions and missions as an "absolute prerequisite" to meeting the challenge of modern warfare. Engle said the present form of the Department is "not the best" and has been changed from earlier to earlier. He said the Department is not even expected to handle the problems of defense problems and the necessary programs that transcend the service and space effort. Reorganization is essential if the U.S. is to survive in the space age.

Sen. E. L. Burton (D-Alaska), Staff Sergeant (D-Mo.) and John Stennis (D-Miss.) all members of the Armed Services Committee, as well as Sen. Joseph S. Clark (D-Pa.) and Sen. Thomas C. Hennings (D-Mo.) supported Engle's recommendations and urged full consolidation of his proposals.

Sen. John Sherman Cooper (R-Ky.) former member of the Armed Services Committee, called upon the President to a bipartisan initiative in this, the present stage of efforts to reorganize the Defense Department in order to eliminate general waste and lack of organization.

Cooper said he would offer a bill to eliminate administration and duplication of Air Force, Army and Navy by making service secretaries unaccountable of defense and by coordinating research and development.

Rep. B. F. Sisk (D-Calif.), member of the House Science and Space Committee, said, "There is no need of reorganization, that is a matter of reorganization, not the Defense Department itself. It is time to close out the Pentagon, put all the services in one building and get some coordination of responsibility over there."

Sisk said he stated during the committee's review of the mission for consolidation by Air Force and Navy of their bases.

He said the Defense Department proceeded with construction of bases, but plans after the war plan have been changed from earlier to earlier. He said the Department is not even expected to handle the problems of defense problems and the necessary programs that transcend the service and space effort.

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## French Drop Long-Range Bomber Program

Paris—Gen. de Gaulle's plan to develop a long-range bomber strike force, with nuclear weapon capability, reportedly has been dropped because of heavy financial costs involved.

Military and civilian sources here charge the government has abandoned its project, according to the fact of developing a large version of an Mirage F1 aircraft. French Air Force is now being built on Tu-160 under license to Soviet Union. The large bomber was to be operated by 1964 at which time the French had hoped they would be capable of meeting it with French-made nuclear weapons.

Demands to drop the bomber project reportedly was received in mid-August at which time the French government had not been made. The French 1968 budget provided for nuclear defense and French Atomic Energy is determined to meet demands of the French nation for additional funds to fight an Algerian war and at the same time finance a French space strike force. For the time being, Gen. de Gaulle personally opposes, the military appears to have decided to put various military demands first.

Reported decisions reflect what some military observers have called a "state of mind" surrounding the current French military thinking. One line the French are pushing ahead with an independent nuclear weapons program and on the other hand are reluctant about their ability to develop and finance an independent delivery system. Some observers say that in the end the French will have to evolve their plans and attempt to meet a deal with the U.S. but then an attack or missile delivery system.

Current version of the Dassault Mirage 4 bomber weighs about 50,000 lb. and is powered by two SNECMA 6V turbojet engines. Range is under 1,000 mi. French had planned to develop the Mirage 4 last version to weigh approximately 120,000 lb. and to be powered by two F4U-100 turbojets. This version, with greatly increased range capability, was to have been France's strategic bomber. About 50 to 60 large Mirage 4s were said to be ordered.

Last June Prof. W. Whitson, and SNECMA signed a licensing agreement (AW June 8 p. 28) under which the state-owned French company was to build the F4U-100 turbojet for the Mirage program. Prof. Whitson also took over a 10% interest in the French company as part of the deal. Now, however, significance of the report is watered down, although SNECMA will maintain and develop 17% in Europe.

Partial consolidation of the military and space programs is already the emphasis of military and civilian agency activities. Removal of the services from the satellite business and creation of a military applications division at the National Aeronautics and Space Administration has been a major step. NASA would be based from booster development except in cases where no military booster could be used.

Abolition of the Advanced Research Projects Agency and transfer of its research activities to the Director of Defense Research and Engineering, ARPA, was in a bill which in the space and missile agencies he said, simplified the operating functions of the services.

Engle said that a study of the space and missile programs indicates that there is no logical basis for completely separating them. NASA was established to place emphasis on civilian and potential use of outer space, he said, adding that the fact was acknowledged that the Defense Department is under civilian leadership and that the Russian space program is under military control.

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He said, however, that NASA and the overall space program have become too well established to completely abolish them and start over again, but that improvements should still be made.

"What I propose is that the development of the satellites and other space vehicles be done by NASA and the military be done by the military."

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over to the military for its particular type of application. When NASA needs missiles, they should take advantage of what the military has to offer, either in existing hardware or in future hardware from developing markets for missiles. If the military finds something to offer, then NASA can develop it on its own.

With three of four essential problems involved in going to reorganize in all existing from outer space—programs, guidance and delivery—systems and logistic between the military and civilian applications, Engle said, the two agencies should work closely together.

The reason he supports a military application division in NASA, he said, is to see that they coordinate their work and that duplication of work and overlapping of functions are avoided in the top layers of the Defense Dept. and through the operating services.

Engle also criticized the trend reported to reach decisions "At the top levels of decision-making," he said.

"We had a proliferation of committees. The NASA has created a Space Group of it also get a civilian-scientist mission committee to coordinate space activities."

NASA has had 14 research advisory committees on which military personnel serve and in turn there are 14 working groups and committees in the Defense Department on which NASA staff members serve.

To complete the organizational complexity and overlap both NASA and agencies of the Defense Department give major attention to the military and civilian services of the military services.

"An overall space mission," he said, "depends more on the priorities and needs of various agencies, and the solutions are always compromises which will not be made by NASA alone."

Engle said the problems of time-lag in the military is the most difficult of all, that the fact is the de-

veloping process upon the development of all an occupy system.

## Non-Profit Status Proposed for STC

Washington—Space Technology Laboratories, a well-known subsidiary of Thompson Ramo Wooldridge, want to convert into a non-profit institution if it is to continue as independent manager of Air Force ballistic missile program, the House Government Operations Committee wants to work in a compromise report having missile program and problems under the end of World War II.

"An independent institution has developed. Government and private business values have become intertwined by the development of both, and there is increasing confusion on the part of Congress and the public over the nature of the STC."

The first step the committee said should be a complete divorce of STC from Thompson Ramo Wooldridge.

"If independent arrangements for nonprofit status cannot be worked out, the alternative is to develop a nonprofit relationship in a structure of the Air Force company, the committee said. "STC would have to go the way of all other contractors and compete in the market for its business."



Martin B-57 to Undergo Further Development

Martin B-57 to Undergo Further Development, above line along under the wing of a North American F-100, will undergo further development at Martin's Orlando Division under a \$1 million Air Force contract. Martin will have atomic capabilities (AW July 14, p. 21) and is intended for flight support by Tactical Air Command. Strategic General will make good a speed of Mach 1.8.





### Vertol Twin-Turbine YHC-1A Makes First Flight

Army Vertol YHC-1A makes first flight at Vertol Aircraft Corp.'s plant at Madison, Pa. Powerplants are two General Electric T58 turboshaft engines rated at 1,625 hp each. Stress pipes are bonded to reinforced objects above rotor hubs. Elongated duct to leading edge of vertical fin suggests air to seal transverse. Top on upper air portion of forward nose facing back up technique.

## GE, Bendix to Develop Satellite

Washington—Advanced Research Projects Agency has chosen General Electric Co. and Bendix Systems Corp. to develop the "Polar Star" polar communications satellite element of new communications satellite Program Notes.

General Electric Missile and Space Vehicle Division has received a \$5.5 million for development of the polar satellite vehicle system and Bendix Aviation Corp. will develop the communications subsystem under a \$5.5 million ARPA contract. The two contracts are awarded by ARPA in the Air Force, GE's Merck and Space Vehicle Division also has been chosen by Douglas Aircraft Co. to develop the new core for the SIGAM-57A air launched satellite vehicle.

"Polar Star" polar communications vehicle will be a real time system designed to provide instantaneous relay of voice or coded messages between aircraft and ground stations or between two ground stations. Satellite will orbit over the north and south poles, and its primary purpose is to provide reliable communications in the polar area where present communications are frequently disrupted by Arctic atmospheric conditions. Improved polar communications are especially vital to Strategic Air Command.

The polar satellite will orbit at an altitude of several thousand miles, and

a number of the communication vehicles will be orbited to provide complete coverage. Because for the system will probably be the General Electric which uses a USAF Convair Altair for its first stage and a Pratt & Whitney liquid hydrogen engine in second stage.

Polar communications satellites will have one element of the family of satellites, covering ARPA will develop under Program Notes as a global communications system. In July, ARPA gave contracts to Polar Corp., International Telephone & Telegraph

Corp. and Rockwell, Inc. (AW July 27, p. 10) to develop ground and vehicle communications elements for General Electric's satellite, somewhat similar to the approach used in the Project Scout Vela satellite orbited last December. Contract for project, p. 10 will select at an altitude of approximately 500 mi.

Program Notes will also include a real time communications satellite which a 22,000 mi. apogee orbit which will have an altitude of the earth. The ground-based satellite will provide coverage up to within about 15 deg. of the poles, and the Vela Star vehicles will provide coverage in the polar area.

### Soviet Scientist Details Re-Entry Needs

Moscow—Russian space scientist V. Dolbuzov has stated that Soviet accomplishments in rocketing man to high altitudes and returning experimental animals to earth do not necessarily guarantee safe success for the role in order of a man coming safely.

Writing in the newspaper Pravda (Moscow), Dolbuzov (Industrial-Economic General, Professor Dolbuzov was the two long-term professional cosmonauts in the field of physics and nuclear electronics." He said the problems in which the experimental dogs and a rabbit were caused to high altitude and returned safely to earth were improvements over earlier models.

"Nevertheless," Dolbuzov, a doctor of physical and mathematical sciences, declared, "it was assumed that one of psychology methods alone, as was the case in launching certain Soviet experimental animals, will not suffice in returning a satellite especially one containing a man. We need a satellite which can also be a unique type of pilot—one that has devices to prevent the rocket from involving animal locomotion and control units."

## New Space Service Forecast by Pirie

Washington—By the time hostile satellite forces are firing each other in space, Vice Adm. R. B. Pirie, deputy chief of naval operations for air, predicts that the U. S. will have a separate satellite service concerned specifically with space warfare.

Adm. Pirie made the prediction while discussing the roles of the services in space at an American Rocket Society meeting here. He also said control of space cannot be considered as end in itself and that, in naval warfare, the use of space will help accomplish marine and objectives.

"On the other hand, it's equally clear that we will have to be able to prevent the use of space to the detriment of these objectives," he said. "The true and benefit therefore from information will be in being able to carry out old, and continuing, tasks on the earth's surface, better than before."

Navy has proposed to the Joint Chiefs of Staff a plan under which a joint Military Space Command would command space system operations, managing the various systems among the three services for operations (AW July 27, p. 24).

Adm. Pirie said, Project TRANSIT (AW Aug. 17, p. 25) is a good example of Navy thinking for the future. TRANSIT is a navigation satellite. Navy plans to have in orbit in the 1961-62 period which will provide navigation information to ships and aircraft under all weather conditions. Applied Physics Laboratory of Johns Hopkins University is building the satellite vehicle.

Navy also is interested in computer systems, Adm. Pirie said, and the anti-missile satellite "will best be launched from naval ships at sea" because of the uncluttered environment and absence of launching sites.

Discussing various space vehicles, Pirie stated that they are now mostly in the hands of the National Aeronautics and Space Administration and the point when the military services will get manned satellites is not discussable because of present Administration policy. He said that when the military needs a manned vehicle, the Administration in office will then have to decide which service will get it.

New astronaut program, exclusive of scientific and development aspects, has been placed under Pirie's command, and he predicted that in the future the Navy space role will "become more prominent and more and more apparent to the public."

Adm. Pirie also said that the Polar Star satellite, now under development by Rockwell Aircraft Co., can be used as a booster for space applications and can launch payloads of at least 50 lb.



### Polaris Launched From Observation Island

New London—Polaris was fired at sea from USS Observation Island for the first time in the launch while the ship ended at 5:41 off Cape Canaveral. Polaris test vehicle was launched by compressed air from a cylinder in the ship's deck similar to the launching tube designed for submarines. First stage ignited when the missile was about 70 ft above the deck. Observation Island was indicated to be 100 deg. so that Polaris would be fired at an angle and would not fall back on the ship in case of a malfunction.





## AIR TRANSPORT



EJECTORS which are part of Douglas DC-8 sound suppression study are ejected on the Delta Air Lines transport in buffer jet tests. Ejectors are used and various tests are to be conducted by the Douglas test plane (AW Nov. 17, p. 91).

## FAA Presents DC-8 Type Certificate

United, Delta plan to begin service on Sept. 18; model with JT4 scheduled for December approval.

By L. L. Doty

Baltimore, Md.—Federal Aviation Agency last week formally presented Douglas Aircraft Co. with a type certificate for the DC-8 transport powered by four Pratt & Whitney JT3 turbojet engines at Washington's National Airport to clear the way for the simultaneous entry of United and Delta Air Lines into U.S. jet competition on Sept. 18.

United Air Lines, which has been forced to juggle schedules to meet Boeing 707 competition by American Airlines and Trans World Airlines and to cut schedules so that pilots could be withdrawn from service for jet training, will enter the competitive race with one daily, nonstop round trip flight between San Francisco and New York on Sept. 18.

Delta, which thus far has had no back-to-back jet competition on any of its routes, will launch its DC-8 service on the same day with one round trip daily between New York and Atlanta. On Oct. 15, the carrier will expand its service to include turbojet flights between Chicago and Atlanta and between Atlanta and Miami.

Thus Delta enters into the jet race well ahead of its principal competitor, Eastern Air Lines, which chose to wait for delivery of its first of 16 DC-8s until the aircraft powered with larger J2W JT4 turbojets are available in order to avoid future conversion costs.

According to Donald Douglas Jr., Douglas Aircraft president, certification of the JT4-powered model is now scheduled for December, with certification target date for the Pratt-Rohrman Common model set for February of next year.

### Delivery Schedule

Eastern expects delivery of its first DC-8 in November so that it can start training at that time and begin scheduled service in January. National Airlines, which has three JT4A-powered DC-8s now on order, also plans to start

regular service at the first of the year.

Of the 143 DC-8s on order, 34 are powered with the smaller JT3 engines. C. E. Workman, Delta president, told Associated Press that his company ordered the six DC-8s with the JT3 engines in order to avoid any conversion delays in beginning service. He said the company plans to convert the aircraft to the larger powerplants or to introduce at a later time.

### Conversion Plans

United President W. A. Patterson also said his company plans to convert the 15 DC-8s equipped with JT3 engines to either Pratt & Whitney JT4s after three or four years of service. United has a total of 40 DC-8s on order at a cost of \$225 million.

Patterson has often acknowledged that his decision to buy the DC-8 is preferable to turbojet transports immediately available for delivery but United at a competitive disadvantage. However, he once noted that the long-term advantages of the DC-8 would outweigh the temporary disadvantage and that one eventual traffic route would be regional quick, when DC-8 jet Member service begins.

Last week, he enlarged upon these "long-term" advantages during formal presentation here of type certification to



UNUSUAL view of three DC-8 jet transports in formation: two are in Douglas markings and the third is United's. The aircraft flew 2,314 ft in Douglas flight tests prior to last week's certification and made 1,762 landings during the test phase.



DELTA DC-8 flew from the Douglas Aircraft plant at Long Beach, Calif., to Miami, Fla., in 4 hr. 41 min. Configuration is for 319 passengers, including seven seated in the lounge.

SIDE VIEW of United's DC-8s emphasizes again its crowded passenger load. Unit has stretch doors which can be closed for thrust-reversing action during landings. N608U is powered by four Pratt & Whitney JT3C-5 engines rated at 11,600 lb. thrust each.



Douglas Aircraft by the Lockheed Air

Speed of takeoff will not be an immediate factor in creating obstacles over aircraft as was the case of previous models. On the other hand, fuel management cannot create a degree of obsolescence as in previous patterns. Lack of DC-8 provides aircraft with a long-range selling advantage in United's opinion.

Increase in weight increases the stress on the balance of an aircraft. DC-8 can absorb certain amount of increase in gross weight without need for too much according to Patterson. United found DC-8 to be "easier to fly" and more advantageous from a flight operation point of view.

Agreeing that these factors were also reflected in Delta's decision to buy the DC-8, Winkhaus added that he expects these factors because of its confidence in the Douglas product.

#### Type Certification

Type certificate for the airplane was presented to Donald Douglas, Sr., chairman of the Douglas board by F. R. Grenada, Federal Aviation Agency administrator, during a luncheon at Baltimore's Friendship International Airport.

Although type certification of the DC-8 was completed a month in advance of the original target date of Oct. 1, actual certification was granted only 24 hours before the launch ceremony arranged by Douglas to publicize the certification. Special flight of DC-8, powered with the JT4 engines, from Los Angeles to Baltimore one day prior to the ceremony was used to create the last phase of the functional and reliability tests of the type certification program. The aircraft was flown here to be used for flight trials as arranged as part of the certification campaign.

Douglas accelerated its certification program as a means of getting the DC-8 into scheduled service at the earliest possible date to permit it to have 737 from getting too big a head in the jet seat. However, FAA inspectors backed by a personal warning from Quebec that no short-cut was to be taken, followed certification procedures to the letter during the review program.

Douglas made the decision to build the DC-8 in 1951. Drawing board stage began in 1952. Since, the production model was to be the first line item, DC-8 was to be made in 1,752 take-off and landings and landed a total of 2,794 ft. of flight. This includes 1,922 ft. of unaccelerated time under all operating conditions.

On the pre-certification flight from Los Angeles to Baltimore, the JT4-powered DC-8 flew the coast-to-coast

#### DC-8 Cargo Version

Bethesda, Md.—Douglas Aircraft Co., looking to advantage in the jet age field of transport equipment, is building an all-purpose outgrowth of the DC-8 to be completed next year.

The aircraft will be a structural cargo plane and will be powered by Pratt & Whitney JT4D turbojets engines. The plane will be designed to operate in the direct operating cost area of four cents a ton-mile. According to Donald Douglas, Sr., an officer for the aircraft has been created, but the company expects that a number of sales will be made.

Douglas officials predict that the life span of the DC-8 freight transporter, ranging from 50,000 to 60 million depending on interior configuration, will not cause developmental costs of the DC-8. However, sales of the DC-8 cargo version are expected to enable the manufacturer to pass its break-even point.

The aircraft will include a sophisticated cargo handling, based on Douglas C-119 and C-119B equipment.

distance in 4 hr. 34 min. Takeoff weight was 255,000 lb. gross and useful climb was at 2,800 fpm. On cruise portion of the flight, average speed was 555 mph, while maximum speed on one engine flight was 795 mph.

Cruise altitude was 35,000 ft. initially. To avoid turbulence at one point, the plane climbed to 37,000 ft. The plane was controlled to operate up to 47,000 ft. and will have an operating ceiling gross weight of 273,000 lb. Landing weight for the flight was 198,000 lb. The aircraft was controlled to cruise at the 118,000 ft. of fuel it carried. Douglas engineers reported that no mechanical items on plane required attention of maintenance crew after landing.

Behind the trading edge of the wing the fuselage is equipped with a series of ballast systems incorporated for additional stiffening to maintain level in the air when empty. This structural feature provides the equivalent of about four tons (800 to 675).

Beginning with the 50th DC-8 to come off the production line, wing slots will be installed on both sections of the wings—two on each side. Two 54 in. sections will be located inboard of the inboard spar, and two 58 in. sections will be located between the two main spars.

Wing slots will cut stall speed 18 ft. and will cut lift-off speed by 1,000 ft. Delta will operate its DC-8 with 49 first class seats, 72 coach seats and a first class lounge, for a total of 119 seats. Service will begin with two air planes and will be increased in October when a third plane is scheduled. Delta Airlines is arranged to create its en-

ter fleet of six by the end of the year. United will expand its initial service in October to include Los Angeles-New York, San Francisco-Chicago and Los Angeles-Chicago flights. In November service will be introduced on the West Coast between Los Angeles and San Francisco and from San Francisco to Chicago and Washington.

Six aircraft will have been delivered to United when service begins next week. By the end of the year, 16 will have been delivered and a total of 72 is scheduled to have been delivered by the end of 1960. United will have all 49 of its DC-8s by the summer of 1961.

United's DC-8 will carry 52 first class seats and an eight-seat first class lounge. Coach section will have 48 seats with a first-class lounge. All lounge seats on both Delta and United's planes will be available.

Both airlines will use four standard engines on jet flights.

Eighteen commercial airlines have ordered the DC-8. They are Alaska, Delta, Eastern, Japan Air Lines, KLM National, Northwest, Olympic, Pan American, Pan American-Gulf, Panair do Brasil, Philippine Air Lines, SAS, Braniff, TWA, Trans-Canada, UAT and United.

#### Flying Tiger Outlines CL-44D Route Costs

Los Angeles—Rosen between one cent per ton-mile and 70 cents per ton-mile, with an average return of about 15.5 cents per ton-mile, was forecast by Robert Prescott, Flying Tiger Line president, in speaking of the Canadian CL-44D transport jet freighter for comparison, will place in service in 1961.

Prescott, speaking at a joint meeting of the American Society of Traffic and Transportation, Ballou Field, Washington Club here, said the first of the 10 planes worth \$40 million, is expected to enter service in the spring of next year.

According to the use of theoretical figures, double the cost of today's freighter type that "the long haul truck will get the job of the past express," Prescott said. He cited three figures concerning the Canadian freighter, which is a winged adaptation of the British Britannia—per mile of 73,000 lb., cost to operate per hour of 460 mph, a cruise capacity of 7,700 cu ft. (the cargo density of approximately 15 lb. cu ft.).

On the other hand, Prescott said he was the only person to look at the CL-44, principally in the time saved in loading and unloading through the wing slot, and the greater reduced ground maintenance time, required by a turboprop aircraft versus the piston," Prescott said.

The effort to improve utilization will create some "radical changes in sched-



New York Control Tower Reddied

Newark Airport's new \$17,000 control tower, almost complete electrically, now is being furnished by Federal Aviation Agency with 51 electronic units of electronic and other equipment. Tower is circular at ground level with 78 ft. diameter at that point a 317 ft. cone section adds supports the upper structure. FAA will staff the facility with 16 electronic operators and 26 air traffic control operators.

16 hr. per day, this reduces to 5728 per flight hour.

If we use push this calculation to 16 hr. per day, with the CL-44, our total costs would be reduced to \$191 per hour, a saving of about \$100 per hour. If you take the arithmetic out, 16 hr. a day is 6,000 hr. per year, and if you save \$100 per hour you have saved \$600,000 operating cost on each airplane per year.

"We believe this kind of capital investment can be brought about in the CL-44, principally in the time saved in loading and unloading through the wing slot, and the greater reduced ground maintenance time, required by a turboprop aircraft versus the piston," Prescott said.

The effort to improve utilization will create some "radical changes in sched-

uling time but general method," he said, today's shippers are used to regular, tight departure at origin and tight arrival times at destination. "We don't know exactly how far we are going to push it, but we are going to push it as far as we can to schedule the flights on an around-the-clock basis in order to achieve low costs. It may be that there will be a total separation between shippers who want the fast overnight schedules and those who can wait for a second day delivery. Perhaps, too, it will be a compromise, square low hours. It will be one of our toughest problems, and I assume we will find and develop it on a trial and error method," he declared.

Another radical change that will come about, Prescott said, will be in tariffs.

Daily, among widespread changes, the time price for over 500 routes is now being revised to reflect factors in cost of handling, value of service or many other factors that cannot be made making. This we know is not the best tariff policy, but we have had no opportunity thus far to correct it.

"We now have an immense amount of money under way. Under the results of this we will construct a new tariff. We expect to be in a position to make modifications ranging from as low as six cents per ton-mile to as high as \$1.00."

Forecasting traffic, Prescott noted that "under we are doing slightly better than 100 million ton-miles annually. The CL-44s will have an annual ship capacity of five hundred million ton-miles—about one-half of what the total scheduled airlines, domestic and international, is doing today."

In 1967 we expect the industry to be doing 7 to 10 billion ton-miles with our own companies flying 600 to 700 million ton-miles," he said.

#### Aerolines' Comet May Be Total Loss

New York—Aerolineas Argentinas Comet 4 jet transport which made a crash landing Aug. 28 short of the runway at Buenos Aires, may be a total loss, leaving the carrier with a fleet of two jets and further deterioration of its schedule and loss, last week.

The Comet, coming into America on an ILS approach after a flight from Buenos Aires, hit about 6 mi. from the airport in a dense fog surrounded by trees and sloughing terrain. The captain was killed in the last impact and two of the other six occupants were injured seriously. The 54 passengers aboard were able to escape, but one woman died shortly afterward, apparently from a heart attack.

The airline was not sure last week whether the plane, now resting in a highly inaccessible spot, can be recovered and returned to service. It had trip schedules between New York and Buenos Aires have been cut from three to two and a reduction in Buenos Aires-South America flights. It is in their own best interest to scrap the Comet. The Argentine carrier also has two two-engine jets between Buenos Aires and Europe with its Comets. Three more of the British jets are scheduled for delivery next year to Argentina.

The airline has been using Aerolineas instead of KLM for Comet stage three mid-August because of rumors of deterioration of KLM caused by the jet blast, according to the carrier. It hopes to see the completion of a new strengthening program at Rio de Janeiro to make the carrier there and the loss of traffic to and out of the Brazilian city.

